

U.S. Serial No. 10/083,093  
Filed: February 26, 2002  
*Amendment and Response to Office Action*  
Page 2 of 13

### AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

#### Listing of the claims

1. (Previously Presented) An implantable prosthesis, comprising:
    - (a) a prosthetic component having first and second surfaces, wherein the second surface is oriented toward a bone in which the component is to be implanted;
    - (b) at least one opening extending from the first surface to the second surface; the opening comprising (i) an extended nonthreaded frustoconical taper section extending through a substantial portion of the opening and (ii) a rounded section beginning at a narrow end of the frustoconical taper section and having a smaller diameter than the frustoconical taper section, wherein the opening accommodates an insertion member at multiple orientations relative to the component; and
    - (c) an insertion member having a head which includes a rounded, nonfrustoconical contact surface that contacts said frustoconical taper section of said opening when the insertion member is inserted into the opening;
- whereby the insertion member fits in the opening in a substantially fluid tight relationship, at a plurality of angular orientations between the insertion member and the opening, and the head of the insertion member does not protrude beyond the first surface.

U.S. Serial No. 10/083,093  
Filed: February 26, 2002  
*Amendment and Response to Office Action*  
Page 3 of 13

2. (Previously Presented) The implantable prosthesis of claim 1, wherein once the appropriate orientation of the insertion member is selected, the insertion member locks relative to the frustoconical taper section.
3. (Previously Presented) The implantable prosthesis of claim 1, wherein the rounded section is a curved surface, a rounded surface, or a spherical surface.
4. (Previously Presented) The implantable prosthesis of claim 1, wherein the head of the insertion member comprises an outer edge that is spherical, near-spherical, toroidal, elliptical, global, slightly curved, or rounded.
5. (Original) The implantable prosthesis of claim 1, wherein the insertion member comprises one or more of a bone screw, a bone peg, a bone spike, or an aperture cover.
6. (Previously Presented) The implantable prosthesis of claim 1, wherein the contact surface of the insertion member head is part of a sphere.
7. (Previously Presented) The implantable prosthesis of claim 1, wherein the opening has an inner wall, the head has an outer rim, and wherein the insertion member maintains a constant point of contact between the inner wall and the outer rim when the insertion member is inserted into the opening at an angle.

U.S. Serial No. 10/083,093  
Filed: February 26, 2002  
*Amendment and Response to Office Action*  
Page 4 of 13

8. (Original) The implantable prosthesis of claim 1, wherein the prosthesis comprises a hip replacement system and wherein the first and second surfaces are surfaces of an acetabular cup.

9. (Canceled)

10. (Previously Presented) The implantable prosthesis of claim 1, wherein the opening is a universal-type opening and wherein the insertion member comprises any one of bone screw, a bone peg, a bone spike, or an aperture cover, wherein any one of the bone screw, a bone peg, a bone spike, or an aperture cover comprises a universal-type contact surface that corresponds to the universal-type opening.

11.-12.(Canceled)

13. (Previously Presented) An acetabular implant for fixation to a patient, comprising:

(a) an acetabular cup having an inner surface, an outer surface, and at least one opening extending from the inner surface to the outer surface, wherein the outer surface is oriented toward a bone in which the component is to be implanted;

(b) the at least one opening having an extended nonthreaded frustoconical tapered section that extends through a substantial portion of the opening; and

U.S. Serial No. 10/083,093  
Filed: February 26, 2002  
*Amendment and Response to Office Action*  
Page 5 of 13

(c) an insertion member for insertion into the opening, the member comprising a head which includes a rounded, nonfrustoconical contact surface that contacts said frustoconical tapered section of said opening;

wherein the at least one opening accommodates more than one type of insertion member, and

whereby the insertion member fits in the opening in a substantially fluid tight relationship, at a plurality of angular orientations between the insertion member and the opening, and the head of the insertion member does not protrude beyond the inner surface of the cup.

14. (Previously Presented) The acetabular implant of claim 13, wherein once the appropriate orientation of the insertion member is selected, the insertion member locks relative to the frustoconical taper section.

15. (Previously Presented) The acetabular implant of claim 13, wherein the head comprises an outer edge that is spherical, near-spherical, toroidal, elliptical, global, slightly curved, or rounded.

16. (Previously Presented) The acetabular implant of claim 13, wherein the opening has an inner wall, the head has an outer rim, and wherein the insertion member maintains a constant point of contact between the inner wall and the outer rim when the insertion member is inserted into the opening at an angle.

U.S. Serial No. 10/083,093  
Filed: February 26, 2002  
*Amendment and Response to Office Action*  
Page 6 of 13

17. (Previously Presented) The acetabular implant of claim 13 further comprising a femoral stem and a cup liner.

18. (Original) The acetabular implant of claim 13, wherein the insertion member comprises a bone screw, a bone peg, a bone spike, or an opening cover.

19.-24.(Canceled)

25. (Previously Presented) An acetabular implant for fixation to a patient, comprising:

(a) an acetabular cup having an inner surface, an outer surface, and at least one opening extending from the inner surface to the outer surface,

(b) the at least one opening having an extended nonthreaded frustoconical tapered section extending through a substantial portion of the opening and a rounded section beginning at a narrow end of the frustoconical taper section and having a diameter smaller than the diameter of the opening at the inner surface;

(c) an insertion member for insertion into the opening, the insertion member comprising a head, which includes a rounded, nonfrustoconical contact surface that contacts said frustoconical tapered section of said opening when the insertion member is inserted into the opening;

wherein the at least one opening accommodates more than one type of insertion member; and

U.S. Serial No. 10/083,093  
Filed: February 26, 2002  
*Amendment and Response to Office Action*  
Page 7 of 13

whereby the insertion member fits in the opening in a substantially fluid tight relationship, at a plurality of angular orientations between the insertion member and the opening, so that the head of the insertion member does not protrude beyond the inner surface of the cup.

26. (Previously Presented) The acetabular cup of claim 25, further comprising:

(d) a liner for lining the inner surface of the acetabular cup; and

(e) a femoral component for insertion into a patient's femur that cooperates with the acetabular cup and liner.

27. (Previously Presented) A method of replacing at least part of a hip joint in a patient, comprising:

(a) providing an acetabular implant for fixation to a patient, comprising:

(1) an acetabular cup having an inner surface, an outer surface, and at least one opening extending from the inner surface to the outer surface;

(2) the at least one opening having an extended nonthreaded frustoconical tapered section extending through a substantial portion of the opening and a rounded section beginning at a narrow end of the frustoconical taper section and having a diameter smaller than the diameter of the opening at the inner surface;

(3) an insertion member for insertion into the opening, the insertion member comprising a head which includes a rounded, nonfrustoconical contact surface that

U.S. Serial No. 10/083,093  
Filed: February 26, 2002  
*Amendment and Response to Office Action*  
Page 8 of 13

contacts said frustoconical tapered section of said opening when the insertion member is inserted into the opening;

wherein the at least one opening accommodates more than one type of insertion member; and

whereby the insertion member fits in the opening in a substantially fluid tight relationship, at a plurality of angular orientations between the insertion member and the opening, and the head of the insertion member does not protrude beyond the inner surface of the cup;

- (b) preparing the bone of the patient's hip to receive the acetabular implant; and
- (c) implanting the acetabular implant.

28. (Canceled)

29. (Original) The method of claim 27, further comprising providing an acetabular cup liner and positioning the acetabular cup liner in the acetabular cup.

30. (Previously Presented) The method of claim 27, further comprising providing a femoral prosthesis and positioning the femoral prosthesis in a patient's femur, such that the femoral prosthesis can cooperate with the acetabular implant.

31. (Previously Presented) The method of claim 27, wherein once the appropriate orientation of the insertion member is selected, the insertion member locks relative to the

U.S. Serial No. 10/083,093  
Filed: February 26, 2002  
*Amendment and Response to Office Action*  
Page 9 of 13

frustoconical taper section such that the head of the insertion member does not protrude beyond the first surface.

32. (Previously Presented) The method of claim 27, wherein the rounded section is a curved surface, a rounded surface, or a spherical surface.

33. (Previously Presented) The method of claim 27, wherein the head comprises an outer edge that is spherical, near-spherical, toroidal, elliptical, global, slightly curved, or rounded.

34. (Original) The method of claim 27, wherein the insertion member comprises one or more of a bone screw, a bone peg, a bone spike, or an aperture cover.

35. (Previously Presented) The method of claim 27, wherein the contact surface of the insertion member head comprises part of a sphere.

36. (Previously Presented) The method of claim 27, wherein the opening has an inner wall, the head has an outer rim, and wherein the insertion member is inserted into the opening at an angle while maintaining a constant point contact between the inner wall and the outer rim.

37. (Previously Presented) The method of claim 27, wherein the interface between the contact surface of the head and the extended taper section comprises a liquid-tight seal.

U.S. Serial No. 10/083,093  
Filed: February 26, 2002  
*Amendment and Response to Office Action*  
Page 10 of 13

38. (Previously Presented) The method of claim 27, wherein the opening is a universal-type opening and wherein the insertion member comprises any one of bone screw, a bone peg, a bone spike, or an aperture cover, wherein any one of the bone screw, a bone peg, a bone spike, or an aperture cover comprises a universal-type head that corresponds to the universal-type opening.